HEART DISEASE AND THE NAUHEIM TREATMENT

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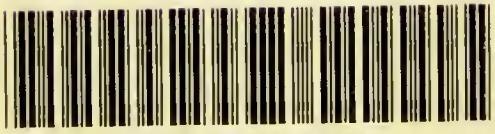
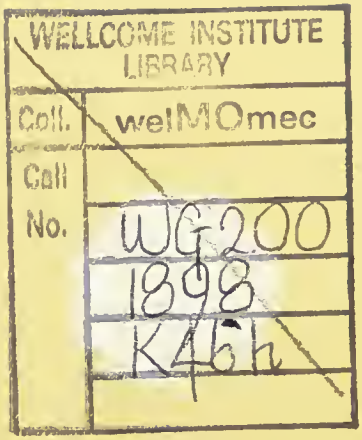


HEART DISEASE AND THE NAUHEIM TREATMENT

WITH A NEW CHAPTER ON REST



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PREFACE

My object in writing is a limited one, to help in extending the use of the Bad Nauheim treatment of heart disease to the many patients unable to visit Nauheim, unequal to the fatigue of the long journey, or to the expense of the sojourn there.

Having visited Nauheim in 1895, and seen the good effects of the treatment in heart disease, I have since adopted it in my own practice *at the patient's house* for those unable to visit Nauheim; in fact, to bring the Nauheim treatment into use amongst the thousands of patients suffering from heart disease who cannot visit Nauheim owing to their inability to give up their occupation, on which their daily bread is dependent. Moreover, Nauheim is only available for a few months in

the summer. Alas! heart disease cannot wait for the 'summer season'; thus a vast number of the most important cases must fall back upon the treatment at home, summer or winter.

The treatment is so definite that it can be carried out at home under the supervision of the family doctor. To the latter this little publication is specially dedicated, in the hope that it may help them in their own practice as much as it helped me in mine. In the words of Dr. Bezly Thorne, 'There is no magic in it—all is clear.' In the words of Dr. Schott, 'The Nauheim baths enjoy no monopoly of heart-therapy.'

PREFACE TO THE SECOND EDITION

In everything, fashion has its votaries. Many people go to Nauheim whose hearts are perfectly healthy, but feeling occasionally a little uneasiness in the left side, they are easily induced to follow their fashionable friends to Nauheim. One such lately said to me, 'Before I went to Nauheim, I knew nothing about my heart; now I am very uncomfortable, always reminded that I have a heart.' So few patients are satisfied to let well alone. 'I was well: I would be better; here I am'—a most expressive epitaph on the tomb of an Italian.

Caution is especially needed for many elderly patients suffering from heart disease, not to give in to the 'craze' of exercise. After sixty, few

men with cardiac failure can take long-continued or violent exercise with impunity, especially those broken down with anxiety and overwork in City life—to such rest, mental and physical, is the great desideratum.

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HEART DISEASE AND THE NAUHEIM TREATMENT

CHAPTER I

THE NAUHEIM TREATMENT

Nauheim is a quiet, rather secluded place about twenty miles from Frankfort, situated in a park-like garden on the lower slopes of the Taunus mountains. It possesses many hotels, six establishments of baths, and a kurhaus. The baths are on the lower part of the slope from the station. An easy ascent leads up to the kurhaus.

A very full account of Bad Nauheim is given in Sutro's book on German mineral waters, published in 1851. It describes its chemical analysis, laying stress upon the Sprudel; yet not one word is said as to the value of Bad Nauheim in heart disease. It remained for Dr. Beneke,[1] in 1872, to make

[1] The late Professor F. W. Beneke, of Marburg, who practised during summer at Nauheim, was the first to direct our attention to this subject about twenty-five years ago, and under his guidance many of our heart cases derived very great benefit from courses

known the good results in the treatment of heart disease. Its reputation gradually increased and became firmly established in 1880, through the skill of the late Dr. A. Schott, and his application of Ling's Swedish exercises. Dr. Theodor Schott has followed his brother with great skill, and perfected the system.

The Nauheim treatment has been admirably described and practised by Dr. Bezly Thorne, who introduced it to the profession in England from his own experience and observation.

The spring most in use for baths is the Sprudel, bubbling up into an open-air reservoir, where, losing its natural carbonic acid gas, it looks red and muddy from the deposit of iron. The Sprudel, thus deprived of its carbonic gas and iron, is used during the early part of the course of baths. Later on the water, conveyed direct from the spring, and not deprived of its carbonic acid, is used for

of baths at Nauheim. In the more recent cases of valvular affection, with decided murmurs from the mitral or aortic valves, or both, we have repeatedly witnessed the murmur slowly but entirely disappear, and the heart become enabled to undergo a natural amount of exertion. This was, we may remark, at a time *when no exercise cure* was practised at Nauheim, and when the place was almost unknown out of Germany (*Spas and Mineral Waters of Europe*, Dr. Hermann Weber).

the 'Effervescing baths,' which to many are more stimulating and invigorating than the ordinary saline baths.

Towards the end of the course the Sprudel water, not deprived of its carbonic acid gas, is kept flowing in and out all the time the patient is kept immersed, constituting the 'Wave' bath, the most invigorating of all.

The natural strength of the mineral water is at times increased by the addition of the 'Mutterlauge,' or concentrated solution of the chloride of calcium and other salts after the chloride of sodium has been crystallised out.

The natural temperature of the springs varies from 95 to 82 degrees Fahrenheit, but in most cases the baths are used at first at 95 to 92 degrees, and later on at a lower temperature, even 85 degrees. To most English patients the temperature of 95 to 85 degrees seems very chilling, but the stimulating effects of the mineral ingredients of the baths seems to prevent chill, and the patient soon gets accustomed to this temperature. The temperature of the bath at Nauheim is arranged *for summer*. During the cold season of the year it is best not to commence the baths at

a lower temperature than 98 degrees Fahrenheit.

The duration of the bath is at first five minutes, and each day a minute is added up to ten, fifteen, or even twenty minutes.

An hour's rest in bed after each bath is considered essential for the Nauheim treatment. In the full season the great demand for the baths[1] renders this difficult, as the accommodation for lying down is very limited, except for ladies. If unable to obtain an hour's rest in bed, the patient goes slowly back to the hotel and then rests in bed for an hour.[2] The best time for visiting Nauheim is from May 15th until the end of June. Early in May the climate is apt to be wet and chilly; in July very close and sultry. August and September much more suitable.

The chief constituents of the mineral water for the Nauheim baths are chloride of sodium and

[1] On commencing the course it is essential at once to secure a bath for a certain hour, and to engage it for the same hour regularly all through the course. By an extra payment the best baths with bed or couch may be secured.

[2] At Wildbad the patient is carried in a covered sedan-chair from the bath-house to his bedroom in the hotel. At Gastein and Wiesbaden the mineral water is brought into the hotel, and the patient at once goes to bed for an hour.

chloride of calcium, with a small amount of iron and a very large quantity of carbonic acid. The chloride of calcium is about a tenth of the amount of the chloride of sodium. The amount of carbonic acid gas is nearly identical with the iron spring at Schwalbach, where the natural carbonic acid gas covers the bather with layers of bubbles.

The theory of Dr. Schott as to the action of the Nauheim baths is that they stimulate the cutaneous nerves, and thus, by reflex action upon the heart, strengthen the muscular power of the ventricles. A more simple and natural explanation is that the action is physical,[1] withdrawing the blood from the heart and large vessels into the capillaries, thus lessening the distension of the ventricles. As the tension is relieved, the cardiac muscle is enabled to contract more vigorously, the dilatation of the heart is lessened, diaphoresis and diuresis follow, with relief to the circulation.

[1] In the words of Dr. Balfour: 'The knowledge of physical laws is of the greatest consequence in the elucidation of heart disease, considering the action of the muscular structure on the valves and arteries and with the orifices and their helps or hindrances' (*Medical Physics*, p. 208).

The use of the baths is the most important part of the treatment, but much of the benefit derived at Bad Nauheim is no doubt due to the total change of scene, the open-air life, freedom from business cares and anxieties. With a defined object in view, the patient gives himself up to the treatment, and follows the routine of baths, exercises, diet, etc.

The effects of the baths are in most cases to reduce the frequency of the pulse, to lessen the dilatation, and increase the muscular power of the heart, thus tending to improve the circulation of the blood in the large vessels and relieve the tension in the distended ventricles. Careful percussion of the heart's area before and after the bath generally shows a diminution in the amount of cardiac dulness; but this is an unreliable fact —not absolutely trustworthy—as the same effect might follow from slight causes, such as the increased activity of respiration, from the exertion of drying the body after the bath, or the change from the recumbent to the standing or sitting posture.

'Sir T. Grainger Stewart and Dr. Holman reported that they examined in the bath at Nauheim

a man whose heart was greatly dilated, and whose pulse was 124, irregular and small. After three minutes' immersion in the bath the pulse had fallen to 114, and in six minutes to 108, whilst it had become evidently better filled. After eight minutes they percussed his heart, and found that the dulness had receded in every direction' (*The Medical Annual*, 1897, p. 284).

There are two cures at Nauheim, a short and a long one. In most cases a month's treatment is long enough. The benefit gained the first month is often lost by the prolonged course of six or seven weeks.

The short course usually extends to twenty-one baths in twenty-eight days. After it, the best course for the patient is to leave Nauheim and take the 'after-cure' in the mountains, and then, if necessary, return for the exercises.

The long course in very many cases destroys the good effect of the short course. The doctor hoping to do more good by prolonging the treatment finds that exhaustion follows, and the ultimate result is often bad and discouraging.

Case 1.—W. G., æt. 68, one of the first cases I sent to Nauheim, and one of the most satis-

factory, consulted me in 1895, suffering from distress along the sternum after exercise, impulse of ventricles feeble, without any valvular murmur, area of dilatation much increased, pulse slow, 48, irregular, intermittent, coldness of the extremities. In a very low condition of general health he went through the six-weeks' course of baths and exercises under Dr. Schott's guidance. From the first steady improvement set in and continued to the end. He returned in a most satisfactory condition, so much so, that of his own choice he returned to Nauheim the following year, and the result was equally good.

Case 2.—Another case, very similar, also derived great benefit. R. F., aged 63, consulted me in August 1897, unable to walk even a few steps from oppression of breathing, the normal area of dulness much increased, the ventricular impulse so feeble as to be nearly inaudible, no valvular murmur, slow feeble pulse, 54. I advised him to go to Nauheim in September. After thirty-one days' treatment under Dr. Schott, he left Nauheim much improved. Towards the end of his course the Sprudel bath was used at 85 degrees for twenty minutes; yet although feeling

cold in the bath, afterwards he felt quite warm and refreshed.

Case No. 3 was one of mitral stenosis, dilatation of the right side of the heart, and enlargement of the liver. I sent him to Nauheim last August, where he had a six-weeks' course. At first he improved, but after the tenth bath felt himself to be getting weaker. Yet the treatment was persisted in for twenty-eight baths, in thirty-nine days; he got weaker and weaker as the duration of the bath was increased to twenty minutes. He returned with the dilatation of the heart just the same as when he went, the mitral murmur louder and more pronounced. During the course he found it a great disadvantage that he was not able to rest in bed after the bath, but allowed merely to recline on a couch for a few minutes. The movements were not advised. For many months after his return he was low and out of condition, an easy prey to influenza, from which he is now (March) gradually recovering. The course of twenty-eight baths was evidently too long, and the duration of the bath up to twenty minutes too exhausting.

At Nauheim the best time for the baths is early

—8 or 9 A.M.—so as to ensure a good hour's rest in bed afterwards, and yet spend all the afternoon in the open air, sketching, or sitting under the trees listening to the music, open-air carriage exercise, short walks, or the exercises late in the afternoon, or massage.

During the stay at Nauheim it is important to have a resting life for the body, but, above all, to avoid *ennui* and to keep the mind active and fully occupied. Otherwise the patient is apt to be dwelling on his sensations and symptoms, and gets discouraged. 'Doctors ought to know that to a man accustomed to work, enforced rest is quite as irritating and depressing as "travaux forces"' (Max-Müller).

The 'special' or resistance movements[1] used at Nauheim are not difficult in home practice. They consist of nineteen movements, which the family doctor could easily learn and apply himself. This is much the best plan for the patient, as the doctor can best apply the amount of resistance. If unable to find time to apply them himself, any ordinary nurse could be taught their application, and under

[1] In Dr. Bezly Thorne's interesting little volume, *The Schott Methods of the Treatment of Chronic Diseases of the Heart*, second edition, there is a very clear description of the various exercises, with woodcut illustrations. *Vide* Appendix.

the doctor's superintendence they may be most safely used.

Auguste Schott derived the idea of resistance exercise from Ling, the originator of the Swedish movements or gymnastics,[1] a very great improvement on the old or ordinary gymnastics. The special virtue of Ling was in the attempt to individualise gymnastics and call into exercise every muscle in the body—thus act on the special regions or organs requiring to be exercised.

Case No. 4.—The danger of Schott exercises in cases of gouty degeneration of the arteries is illustrated by the following case: A gentleman, aged 79, of a gouty constitution, suffering from dilatation of the heart with a mitral murmur, difficulty of breathing in walking, and orthopnœa at night. Unwilling to undergo the fatigue of the journey

[1] 'The symptoms of debility of the heart are often removable by a regulated course of gymnastics, or by pedestrian exercise, even in mountainous countries, such as Switzerland or the Highlands of Scotland and Ireland. We may often observe in such persons the occurrence of what is commonly known as getting the second wind—that is to say, during the first period of the day the patient suffers from dyspnœa and palpitation to an extreme degree, but by persevering without over-exertion, or after a short rest, he can finish his day's work, and can even ascend high mountains with facility' (Dr. Stokes *On Diseases of the Heart and Aorta*, Dublin, 1854).

to Nauheim, he had a course of eighteen baths at home, most carefully carried out under strict daily medical superintendence. The bath prepared with the Nauheim ingredients was taken at 5 P.M., at 97 to 96 degrees for five, gradually increased to seven, and to ten minutes. Any attempt to lower the temperature below 96 degrees proved distressing. During the first fortnight of the baths there was manifest increase of strength; his colour improved as if from the full effect of iron.

Then the resisting exercises were added on to the baths. Towards the end of the course he lost a little of the early improvement. After the course of eighteen baths was finished, the exercises were continued for a week longer; then—in the very act of the last exercise of the course—a small blood-vessel burst on the lung, and slight hæmoptysis came on, which continued for upwards of three months, so that most of the gain from the course was lost. The breathing was not improved.

The mechanical, or Zander, exercises advocated by Dr. Groedel are decidedly inferior to the Swedish exercises adapted by Dr. Schott. The human arm is far safer to trust to for resistance than the machine-made Zander.

At Nauheim it is important, but not easy, for English patients to diet properly, as it is difficult to select nourishing, wholesome food out of the many dishes set before them. For those who can afford it, the best plan is to avoid the *table d'hôte* altogether and go to the kurhaus, where wholesome food can be specially ordered more in the English fashion.

The 'after-cure' is most important. If to the mountains, a place not too elevated, in a dry, open situation, should be selected. The best choice is amongst the Alps at an elevation of 3000 or 4000 feet above sea-level, where the air is clear and dry, and there are long, easy slopes where systematic open-air exercise can be taken without much ascending. Among the most suitable are Monte Generoso, above Lugano; or Gastein, near Salzburg in Austria, with its miles of winding pathways, nearly level; or the Eggischorn, with its two or three miles of easy walks, at upwards of 5000 feet *elevation*.

Case No. 5.—For many years Miss H., æt. 36, suffered from cardiac weakness, stenosis of the mitral valve, with loud mitral murmur, the result of rheumatic fever.

In August 1895 I sent her to Nauheim, where she took the course under Dr. Schott with great benefit. Unfortunately, for the 'after-cure' she was induced to go to Engleberg, a wet, relaxing climate in Switzerland, where she got a fresh attack of rheumatic fever. She was removed to Lucerne for medical treatment, and died there at the end of September following.

In cases of thickening or deposit on the valves of the heart, the result of rheumatic fever, the action of the Nauheim baths has had a good reputation for many years, even before the Schott treatment of resistance movements was added to the use of the baths. Dr. Beneke found the Nauheim baths useful in promoting absorption of the lymph from the cardiac valves, the result of rheumatic fever. These cures were likewise effected independently of the so-called Nauheim exercises.

'Speaking generally, *the baths*, as compared with the exercises, offer special advantages for the treatment of those cases in which a rapid, feeble, and perhaps also irregular or intermittent pulse is the expression of cardio-vascular degeneration, whether there be coexisting valvular lesions or not' (Dr. Bezly Thorne).

The Nauheim waters for drinking are not much used. They are said to be similar to Kissengen, but are utterly inferior to the renowned Rakoczi at Kissengen.

The subject of cardiac pathology has become much more prominent and important of late years because of the increase of heart disease, due to the following causes:—

1. The injurious effect of rheumatic fever on the valves of the heart and the myocardium.

2. Gout, and the prevalence of Bright's disease of the kidneys, due to the abuse of alcoholic drinks: also excess in the use of animal food: hence degenerating arteries and gouty deposits on the valves.

3. The injurious effect of typhoid fever[1] on the

[1] Dr. Stokes of Dublin, in his book, *Diseases of the Heart and Aorta*, published in 1854, states: 'If we confine ourselves to the consideration of the muscular tissue in typhus fever, we find that the existence of an altered state of the voluntary muscles has long been admitted by authors (p. 366). . . . A softened state of the heart as attendant upon idiopathic fever was first noticed by Laennec; and although he does not express himself with distinctness upon the point, he seems to hold that the condition of the heart is only to be taken as an example of that of the entire muscular system. This doctrine, which we have seen to be erroneous, was first corrected by Louis, who in speaking of the softening of the heart in fever observes, "that no similar lesion

muscular walls of the heart, described by Dr. Stokes of Dublin, is similar and more frequent after influenza, which is one of the most exhausting of all diseases in its after effects, especially in cases of old valvular disease, many such going on for years perfectly well, with good compensation, till the onset of influenza. The patient recovering from influenza finds himself breathless on exertion and unable to mount the stairs as of old; in fact, the compensation which had been sufficient up to the influenza, then gradually failing through weakening of the cardiac

was found in any muscular organ, as all the muscles which preside over voluntary motion preserve, amid the general disorder, their natural colour and consistence" (p. 367). . . . In the cases observed by Louis, the alteration was confined to the left side of the heart; and our observations of the signs during life and from dissection establish that the left ventricle is the portion of the heart first and most prominently engaged. We have, it is true, observed the phenomena of softening of the entire heart, but all our results are confirmatory of Louis, and it would be a strange sort of putrefaction which would stop short at the left and not affect the right ventricle (p. 371). . . . We have found after a large experience that the signs of debility, if not of softening, of the heart are by no means so frequent in those cases which writers term typhoid as distinguished from typhus fevers (p. 419). . . . We have already noticed the greater frequency of this form of murmur in the typhoid than in the typhus case (p. 502). . . . These observations were mostly made in the years 1837, 1838.'

muscle and consequent dilatation of the ventricles.

Case No. 6.—Cardiac failure, after influenza. Mrs. S., æt. 45, a lady of strong robust frame inherited from her father and mother, who both lived to near ninety years of age, consulted me in January 1898 for palpitation and breathlessness, from which she had suffered for five years, since a severe attack of influenza in 1893. All her children being down with the influenza, she persisted in nursing them and over-exerting herself when she herself was very ill. Cardiac failure resulted, and has persisted for five years. The injurious effect of the influenza was aggravated by over-exerting herself, when she ought to have been in bed.

4. The strain suddenly put upon the heart by the hurrying to catch trains, rushing upstairs and along platforms, with the deathlike struggle to get in before the train starts.

5. The strain upon the heart and large vessels by violent exercises—especially rowing and running—which quickly sends a sudden rush of blood to the lungs and distended heart, whose exhausted muscular power is unable to contract vigorously and send the current of blood onwards.

In the diagnosis of heart disease percussion is of great consequence, almost as much as the use of the stethoscope. For treatment, the accurate use of percussion is even more important. It enables the doctor to watch the capacity of the ventricles and to learn how far the muscular walls are distended and unable to send on the current of blood.

As a guide in the use of Nauheim baths, percussion is a good test of their suitability. Ordinary percussion—in the words of Dr. Maguire, 'finger upon finger is the best'—is more trustworthy than auscultatory percussion. The latter, in the words of Sir William Broadbent, 'leaves room for exercise of the imagination, and its results are untrustworthy.' In many cases careful percussion in the ordinary way corrects and invalidates the lines marked out by auscultatory percussion which uses an ordinary pencil to percuss, while the binaural stethoscope is applied to the ear. It looks a very poor, unreliable substitute for the ordinary percussion. By percussion we can map out exactly the dimensions of the heart and of the large blood-vessels, learn the amount of dilatation, and watch the result of the treatment.

For patients suffering from heart disease, who

can afford the time and expense, no doubt the best and wisest course for them is to go to Nauheim and there have the treatment under Dr. Schott's superintendence. If possible to give time to the course, have the set of baths first; rest after the course for a few weeks, then have the course of resistance movements. To many this course is too tedious, therefore the baths and muscular movements are usually combined in the six or seven weeks' course.

CHAPTER II

THE NAUHEIM TREATMENT AT HOME

In prescribing a course of Nauheim baths at home it is most important carefully to examine the patient before commencing the treatment, and occasionally once in two or three days during the course; also to attend to the functions of the stomach, kidneys, and liver, especially the latter. It is important to explain the exact arrangements for the administration of the course of baths, so as to enlist the help of the patient and friends in the management; above all, to urge that the course should be persevered with for the exact number of baths prescribed. In all this the patient and friends are very willing helpers, as most cases of heart disease have very decided signs and symptoms —the exact opposite of Bright's disease, in which the patient often exclaims, 'There is nothing wrong with my kidneys: I never have pain in my back!'

1. Arrangements should be made so as to keep to a prescribed hour for the course of baths.

2. The baths should be taken in sets of three—a bath each day for three days, then omitted for one day; so on for eighteen or twenty-one baths. The medical attendant ought to visit the patient soon after each bath of the first set of three, subsequently to visit after each third bath during the course, so as to watch the pulse and the area of dilatation, and the amount of reaction after the bath.

Of all diseases those of the heart require the most exact and careful treatment. The course of Nauheim baths at home should be carried out with rest of mind and body, if possible a holiday from the daily occupation. All the arrangements of the bath should be carried out most carefully, without haste or hurry—the bathroom cleaned and ventilated, the saline constituents added, and the temperature settled before the patient undresses. In the bath to rest quietly without much movement. After the bath the patient should sit down in a bath-sheet—so as to dry the body without much exertion—and thus promote a good reaction and avoid hurrying the circulation; then to rest

in bed for a full hour, and not to go out of doors at night after the bath, if taken at 5 P.M.

In cases of cardiac failure with headache, it is best for the patient to sit up in the bath. To lie flat in such cases often causes increased headache, whereas sitting up in the bath draws the blood from the brain to the abdominal organs and relieves the headache.

The chemical constituents of the Nauheim baths are well known, and the ingredients[1] for preparing the bath at home can easily be supplied by any chemist. The ordinary full bath in general use in England holds about fifty gallons of water. The chemical ingredients to be added are five to ten pounds of chloride of sodium and five to ten ounces of chloride of calcium. In the first three baths five pounds of the chloride of sodium and five ounces of the chloride of calcium, then increased up to the full quantities of ten pounds of chloride of sodium and ten ounces of chloride of calcium; thus, as at Nauheim, using the weaker strength in the early part of the course.

[1] Ten pounds of chloride of sodium in powder or block, and ten ounces of chloride of calcium dissolved in a pint of distilled water. The chloride of sodium should be dissolved in the bath first, then the chloride of calcium added.

After twelve baths the simple saline can be changed to the effervescing, by adding to the baths prepared with the saline ingredients Sandow's Carbonic Acid Tablets, to be had at any chemist's.

In the use of the saline baths at home, even in summer, it is best to begin at 96 degrees Fahrenheit for the first three baths, the next three at 94, the next set 92, and so on, cautiously reducing the temperature a degree till the last six baths are taken at 88 to 85 degrees; but the duration at 85 should not exceed fifteen minutes. The lower temperature necessitates more care to avoid chill or exhaustion after the bath.

In winter, spring, and late autumn the temperature should not be lower than 95 degrees.

The best time for the bath is five o'clock in the afternoon, so as to have a quiet hour's rest in bed after the bath before dinner.

The hour's rest in bed after the bath is essential. Eight A.M. suits quite as well as 5 P.M., thus enabling the patient to have the hour's rest in bed before breakfast. When kidney complication (albuminuria) exists, bedtime is the best hour to adopt, so as to get a gentle perspiration all night after the bath.

The patient should stay in the first bath for five minutes, the second for six, the third for seven minutes; the next set of three baths, eight minutes; the next three, ten minutes; the next three, twelve minutes; the fifth set, fifteen minutes; the sixth set, twenty minutes; and the seventh set, for ten minutes, thus reducing the duration of the bath towards the termination of the course. Before the patient undresses, the bath should be perfectly arranged and ready, so as to have no delay after undressing; while in the bath to rest quietly, not moving the hands; after the bath to dry in a warm sheet whilst sitting on a chair, put on a warm woollen night-dress and go into the warm bed for the hour, then to dress quietly. During the use of the baths extreme care should be taken to avoid chills or exposure to currents of cold air; but it is important to have fresh air in the bathroom, even to keep the window open is safe, unless the weather is cold or windy.

If head ache whilst in the bath, a little cold or tepid water should be kept to the face, forehead, and back of neck by means of a wet towel or sponge, so as to equalise the circulation.

The saline bath should not be taken when the

patient is tired by exercise; and at least two hours should have elapsed since the last meal.

It is desirable that the patient should have some one in the bathroom, or near it, to watch lest any tendency to faintness or exhaustion, and to help in the process of drying after the bath.

It is usual to discontinue all medicinal treatment during the course, unless called for by some special need, such as dropsy, or cardiac asthma, or bronchitis. A remedy often prescribed at Nauheim is infusion of digitalis, which Dr. Schott told me was his favourite prescription in aid of the baths in the bad cases.

Once or twice during the course of baths it may be necessary to examine the area of cardiac dulness after the bath; but although a satisfaction to the doctor, it is a risk to the patient, delaying *the resting after the bath*, and causing nervousness. It is sufficient to take the tracing of the area of dulness at the commencement of the course and at the conclusion of each set of three baths, but not to weary the patient by doing it frequently. It is less disturbing to watch the effect of the bath on the pulse and the heart's action after the patient has settled comfortably in bed.

During the course of baths, the management of the diet, food and drink, is most important. The meals to be small in bulk, yet nutritious: animal food, fresh meat, fresh fish, poultry or game, twice a day. Most of the bread should be taken as crust or dry toast with fresh butter; soft bread to be avoided. Fresh vegetables, well cooked, at least once a day. Farinaceous puddings sparingly, or not at all. Fresh fruit, stewed, moderately; but no uncooked fruit and no uncooked vegetable. Pastry, tarts, cakes, should be avoided; also sweets, jam, marmalade, honey. Coffee[1] should be discontinued, and China tea, infused not longer than two minutes, or cocoa, chocolate, or milk be taken. If the patient be accustomed to the use of wine, let him continue it, red or white, whichever suits best; but avoid spirits, ale, and stout.

A 'dry diet' suits many cases of heart disease. At the meals to eat freely and drink sparingly. Drink may be taken freely three or four hours after meals, or an hour before meals. Hot

[1] In many people with irritable hearts I have known very distressing effects from the use of strong coffee, which in some causes a dull fixed pain over the sternum and præcordia and choking akin to angina. Strong tea begets palpitation, but not the fixed pain with anxiety that strong coffee produces.

water is often the best drink. At Nauheim, Dr. Schott forbids the use of coffee, sparkling wines, aerated waters, pepper, and all highly-seasoned food.

During the course of saline baths it is most important to regulate the amount of exercise, especially to avoid long walks, or a quick pace, or the least approach to over-fatigue. Of all exercises the worst for heart cases is rowing. Quiet exercise on horseback is one of the best: next to that, golf. Cycling is treacherous—good in a few cases, and mischievous in many. Excessive cycling is a great risk to the heart.

Case No. 7.—Mrs. S. consulted me in May 1897 for distressing pain all over the sternum and front of chest, radiating down the arms. I found loud diastolic murmur over the aortic area. In her desire to keep up with her husband she cycled fifty-six miles one day, soon after which the angina developed. After twenty-one Nauheim baths at home, and careful resting for an hour three times a day, all pain and distress vanished, and she is now able to cycle for one easy hour without discomfort.

Lawn-tennis is too exciting, and causes irrita-

bility of heart from the quick sharp runs. The best rule is to advise the exercise which gives free action to the lower limbs and not much to the upper.

Of all organs of the body the heart requires rest in the recumbent or semi-recumbent posture *after exercise*. With City men this is often neglected. After the day's work, an hour on the couch before the late dinner or supper is well spent. Cardiac weakness is apt to beget irritability and restlessness, and thus prevent the taking of rest.

In the treatment of diseases of the heart Dr. Oertel introduced the graduated system of walking uphill—a very risky plan of treatment, useful to one, but injurious to many; a very effectual way to prove the 'survival of the fittest,' as it killed off the bad cases, with an occasional brilliant cure of the slight ones.

Laying aside the idea of Dr. Oertel as to graduated exercise in *ascending mountains*, it is most important to consider the effect upon the heart of mountain air, which stimulates the production of red corpuscles and of hæmoglobin. The clear shining of the sun through the dry atmosphere

wonderfully invigorates all, especially the worn-out denizens of the city. Mountain air also relieves the respiration, taking a weight off the body. When the atmospheric pressure in the lowlands is equal to fifteen pounds to the square inch, in the Engadine it is at least three pounds less, or nearly so. In the rarefied atmosphere of the mountains, the diminished barometric pressure and the dryness of the air cause increased respiratory activity, which relieves the auricles and ventricles distended and dilated through enfeebled muscular power. Thus the heart is relieved, as the increased volume of blood in the capillaries lessens the dilatation of the ventricles.

Open-air exercise on the level, in the moderately high parts[1] of the Alps, is the most helpful, especially if followed by rest in the recumbent posture.

Cardiac failure is often dependent on deficient

[1] In September 1893 I met a patient at St. Moritz, in the Engadine, suffering extreme distress from breathlessness, oppression of the head, distension of the veins of the neck, face, and head, vertigo, a condition indicating danger to the brain. I urged him at once to go 1000 feet lower to Wesen, near Davos. There absolute and perfect relief at once followed, and he finished his holiday in comfort.

oxygenation of the blood through imperfect respiration. Thus, a walk of three or four miles downhill sufficiently excites the respiratory effort without causing distress or pain in the region of the heart; whereas a slow walk of even half a mile uphill in many patients causes pain along the sternum, oppression of breathing, and weariness of mind and body.

The cases most suitable for the Nauheim treatment are :—

1. Those of dilatation of the heart,[1] without valvular murmur, coming on from any exhausting cause, with irregularity of the heart's action, palpitation, præcordial pain, breathlessness on exertion. Such cases are the most hopeful of all for permanent benefit.

[1] 'In dilated hearts the immediate result of about ten minutes' exercise is often a diminution in the superficial area of cardiac dulness. This diminution does not last, and it would be out of place here to discuss its therapeutic significance; but what is much more important is the satisfactory result claimed to follow a prolonged course of this treatment in the class of "cardiac" cases mentioned above. There appears to be considerable danger, however, of patients with heart disease and insufficient compensation of such a severe character that rest in bed is absolutely necessary being injudiciously recommended to try the Nauheim treatment' (Dr. Hermann Weber).

2. Dilatation of the heart with valvular murmur,[1] or with loss of compensation, in old cases of heart disease from bronchitis and degeneration of the myocardium.

'Such cases we have seen cured, not only from the system of combined treatment by baths and exercises, but long ago from the use of the baths at Nauheim, BEFORE THE EXERCISES had been introduced' (Dr. Hermann Weber).

'The exercises are inferior to the baths in range of applicability and in efficacy' (Dr. Leith).

3. Heart failure after influenza. This class of case has become very numerous of late years, the most frequent signs being breathlessness, inability to walk uphill or upstairs, præcordial pain, restless nights, with cardiac asthma. The effect of influenza is the same in degree as the injurious effect of typhoid fever on the heart, described by Dr. Stokes of Dublin. In such cases rest to the heart is quite as necessary as open-air exercise;

[1] 'Of all the signs of cardiac disease murmurs are those most usually confided in, and yet they are really those of least value, first, because murmurs truly of valvular origin may disappear temporarily or permanently. The existence of a well-defined murmur is not by any means a certain indication of actual valvular disease' (Balfour, pp. 35-41).

early to bed and late up, so as to ensure nine or ten hours in the recumbent posture; also to rest once or twice during the day for an hour, in bed or on the couch.

Case No. 8.—Cardiac distress for three years after influenza. Completely restored by eighteen Nauheim baths at home, although unable to have daily medical superintendence.

Mr. C., aged 60, of a gouty constitution, had been out of health for three years since a severe attack of influenza, suffering from palpitation, breathlessness on exertion, irregular, intermittent pulse, varying from forty to forty-six in frequency —seldom above forty—systolic murmur over the region of the mitral valve, the area of cardiac dulness much increased, urine of sp. gr. 1020, containing $\frac{1}{70}$ albumen, and much uric acid gravel. I advised a course of eighteen baths at home, and to discontinue all medicine during the course. Being winter (December) the baths were used at 98 to 97 and 96 degrees for seven to ten minutes at 6 P.M., followed by an hour's rest in bed before dinner. The course of eighteen baths was carried out in twenty-four days, accurately and carefully managed in every detail, from written directions,

by his wife at his own house in the country. I examined him most carefully before commencing the course, and regularly once a week during the course. The effect was magical; distinct improvement of the breathing, and of the heart and kidneys, followed, and he was restored to a state of health that he had not known for three years. The improvement has continued. I examined him on March 15th. The area of dulness was normal, and all signs of dilatation gone. The pulse that for three years seldom exceeded 46 was 60, equable, soft; the urine of sp. gr. 1020, absolutely free from albumen.

4. Angina Pectoris.—The paroxysm of angina pectoris is one of the most distressing that the human body is subject to—a sense of suffocation and of impending dissolution, with an agonising pain shooting into the chest and down the left arm. Happily there are perhaps a hundred slight cases of angina to one severe; yet most cases may derive lasting benefit from Nauheim treatment especially, if it be used with caution. 'There is simply a gradation of severity and curability between the so-called cases of pseudo-angina and those of true angina' (Burney Yeo). The tendency to recurrence gives time for treatment, and in many the

Nauheim treatment proves helpful in preventing the attacks.

The first paroxysm of angina generally comes on in the night from the pressure of flatulence, or after exertion, as if nature craved for rest to the ceaselessly acting muscular fibres of the ventricles at work day and night without cessation all through the years of life. The more serious the case, the more necessary is rest for a time, so as to let the heart muscle recover itself. The best result follows when perfect rest of mind and body precedes the careful use of exercise, passive or active. When symptoms of true angina appear, it is most important *not to whip the tired horse.*

Angina pectoris depends upon imperfect nutrition of the heart muscle,[1] through the lessened supply of blood to its structure, from obstruction in the coronary arteries. 'So long as the coronary arteries are able to feed the heart, it matters not what their structure is, we have no angina' (Balfour).

In angina it is of the utmost importance to adopt every means to promote the nutrition and

1 'Although the heart is always full of blood, yet it cannot appropriate to its own wants a single particle of fluid contained in its cavities. On the contrary, like every other part, it has peculiar vessels set apart for its nourishment' (Allan Burns).

improve the general health; open-air exercise followed by rest; the avoidance of tea, coffee, and tobacco; the moderate use of wine. Of all heart diseases, angina pectoris requires extreme care in the management of the diet. The meals should be small in bulk—taken at regular hours—all the bread as crisp thin toast. Extra care should be taken to eat slowly and masticate well; to drink sparingly with food; and absolutely to avoid soup, fruit, vegetables, or pastry, at the late dinner or supper, so as to prevent flatulency, which seems one of the chief causes of the paroxysm.

I know of one case of angina much relieved by the course at Nauheim. On his return the patient continued the exercises at home for six months afterwards, by the help of his son, who accompanied his father to Nauheim, watched the exercises practised there, and accurately applied them afterwards.

5. Cases of failure of compensation in long-standing disease of the muscular structure of the heart, and incompetency of valves, stagnation of the current of blood in the capillaries, the lowered muscular power preventing the margins of the valves from closing, and thus leading to regurgitation. As this increases, obstruction of the liver

follows, and dropsy. Even in such apparently hopeless cases, perfect relief may be obtained from the Nauheim treatment, even after the failure of digitalis or strophanthus. 'After Nauheim the action of digitalis is more satisfactory and certain' (Dr. Heineman).

Case No. 9.—Advanced disease of the heart, with mitral and tricuspid regurgitation, and dropsy. Perfect relief from eighteen Nauheim baths at home, although unable to rest from business.

T. H., aged 58, consulted me in 1896, after a severe attack of bronchitis, suffering from irritable cough, wheezing, difficult expectoration, oppression over sternum, gradually increasing dyspnœa on exertion, cardiac asthma, and palpitation at night, unable to lie down in bed. To use his own words: 'If I lie on the left side, palpitation; if on the right side, a sense of suffocation'—altogether a most piteous state. I found far-gone dilatation of the heart, especially of the right side, with diastolic murmur, loudest over the tricuspid valves, œdema of the legs and of the right lung, enlargement of the liver, urine scanty, containing a trace of albumen, $\frac{1}{80}$, and at times a little sugar (six grains to the ounce).

He being a clerk, obliged for his daily bread to

continue his work, and unable to get home until 7 P.M., I advised him a course of eighteen Nauheim baths at 98 degrees, at bedtime, for seven minutes each. At the end of the course he reported, 'I can lie comfortably on either side, and have lost all sense of suffocation.' I found the area of dilatation much lessened, the albumen gone. He resumed his City work with renewed health. After two months he had a relapse in March from sudden chill, with bronchitis, dyspnœa on exertion, suffocating cough; urine sp. gr. 1018, albumen $\frac{1}{40}$. Being unable to stay away from his work beyond two days, I prescribed three Nauheim baths at bedtime, on Friday, Saturday, and Sunday nights, he being obliged to return to his work on Monday morning. The effect was again perfect relief; and he went back to his work on Monday morning in great comfort. This case is a good illustration of a bad case treated at home without any help from rest, unable to leave his work till 7 P.M., and yet the most marked relief followed the course of baths without the exercises. It is most important not to hesitate in the use of Nauheim baths, even in the worst cases, and under the most unfavourable circumstances.

6. In cases of thickening of the valves of the heart after rheumatic fever, much may be done to promote absorption of the lymph from the valves. In such cases—in home practice—it is best to commence the treatment by baths at 98 degrees, and to reduce the temperature very slowly, also to watch the least approach to chilliness after the bath. If the reaction is imperfect, or exhaustion follows the bath, increase the temperature a little and shorten the duration of the bath.

7. In many cases of chronic disease of the heart, albuminuria is a distinct accompaniment, especially in those of a gouty constitution. In such, the effect of the saline baths at home is much better when taken at bedtime, so as to have the free action of the skin for eight to ten hours after each bath. One patient suffering from albuminuria, with a much-dilated heart, and a soft systolic murmur over the mitral valve, the result of rheumatic fever, derived very great benefit from a course of twenty-one saline baths taken at bedtime, at 98 degrees Fahrenheit, for seven, gradually increased to ten minutes. The albuminuria disappeared after the course. He volunteered the remark, 'I have much more perspiration after

the saline baths than after the ordinary warm baths.' In a few cases the saline baths at bed-time cause sleeplessness. In such it is best to order the bath at 6 P.M., or even at 7 P.M., for business men unable to get home early.

8. Even in the most serious cases of heart disease, aortic regurgitation, with pains over the sternum and down the left arm, breathlessness on exertion, and œdema of the lower extremities; also in far-advanced dilatation of the heart with tricuspid regurgitation, obstruction of the portal circulation, inaction of the liver with ascites, and general dropsy. In such important help may be obtained by the saline baths — if not cure, yet most manifest improvement.

CASE No. 10.—Cardiac weakness for many years, dilatation of the heart with mitral and tricuspid regurgitation, enlargement of the liver. Very decided benefit from twenty-one Nauheim baths at home, but relief only temporary. A lady, aged 59, consulted me in October 1896. I found her case a most unpromising one: heart much dilated, with mitral and tricuspid regurgitation, enlargement of liver, scanty secretion of urine—sp. gr. 1020, containing $\frac{1}{80}$ albumen—œdema of both extremities,

especially the right. Notwithstanding very careful medical and general treatment, she remained in a very unsatisfactory condition until in December I advised the Nauheim baths at home, which were carefully carried out at her own house by her daughter, twenty-one baths spread over thirty-five days, at 98 degrees, for five, gradually increased to seven and ten minutes. The relief to her breathing and the liver and kidneys was very satisfactory, lasting for some months. Afterwards she had a relapse because of the extensive organic disease.[1]

9. Failure of compensation owing to over-distension of the ventricles. When the most careful medical and general treatment fails to restore the compensation, the Nauheim baths often succeed, and subsequently the medical treatment is more helpful.

Next to exercise and rest in heart cases, the clothing is most important. Most people, men especially, clothe too heavily. Dense, thick underclothing, thick, heavy, long overcoats, oppress the lungs and heart, and make exercise a burden.

[1] 'As to old-established affections of the valves, spa treatment has no curative influence on them as such; but the morbid conditions to which they give rise, viz. dilatation of the heart, catarrh of the lungs, congestion of the liver and abdominal organs, may be relieved' (Dr. Hermann Weber, p. 317).

Copious perspiration after even a short walk is followed by chill and bronchitis, on recovering from which extra clothing is often added, till the overburdened heart gets strained under the heavy weight, and open-air exercise gets more and more neglected.

In mild winter weather, it is better not to wear an overcoat in walking, but to carry it over the arm to put on after exercise, or when going home at night.

One of the most important aids to heart cases is to dispense with braces, to make the clothing thin but warm, to avoid the use of heavy coats, except for actual journeys.

Exercise in the open air is essential, so as to expand the lungs and thus relieve the heart; but it should be moderate and gentle, so as to avoid the least distress to the breathing. The muscular power of the heart is easily exhausted. All those suffering from cardiac failure, even in a slight degree, should be warned to walk slowly and avoid unnecessary going upstairs or uphill; to guard against pain or distress in the chest after exercise, and to aim at rest in the recumbent or semi-recumbent posture after exercise.

CHAPTER III

ON REST IN CARDIAC FAILURE

Considering the many cases of cardiac failure that derive benefit from the Schott resistance exercises, yet a large number derive no benefit from such, on the contrary, are made worse. It remains to consider the question of *rest* in heart disease in conjunction or not with Nauheim baths.

The law of muscular development following on exercise is true of the voluntary muscles, but not so much so of the involuntary muscles. 'Cardiac muscular fibre, although striped, is not quite the same as the fibre of voluntary muscles. The muscular fibres of the heart in their mode of action belong to the involuntary class' (Quain's *Anatomy*).

In the management of heart disease, it is most important to recollect that the heart's action has no rest night nor day all through life—a ceaseless routine of active contraction and dilatation, the latter

not altogether passive. In cases of cardiac failure, treatment by rest should precede that by exercise, and the latter at the right time most cautiously used, so as not to increase the wear and tear of the heart's structures. 'Auguste Schott's contention that the heart under the influence of increased work is strengthened, may be accepted as true under certain conditions of exercise used in moderation, but never to the *extent of causing præcordial pain or dyspnœa*; while the fully compensated heart can submit to great strain, the effort imposed upon the enfeebled with lost compensation has to be very carefully regulated.' (*Vide* Alexander Morison's *Cardiac Failure*, p. 163.)

The cause of loss of 'compensation' may in most cases be traced to some exhausting influence; such as influenza, typhoid fever, or bronchitis; to over fatigue in lifting or carrying, anxiety or nerve shock. When the normal compensation is beginning to fail, the patient quickly recognises the need for rest. To advise exercise to such a one, the quick reply generally is, 'But I cannot walk or exert myself without distress.'

'Compensation' in cases of valvular disease is to be gained by increased muscular power of the

auricles and ventricles, the true conservative effort of nature to overcome the obstacle of valvular obstruction, whether stenosis or incompetence from dilatation. 'Compensation' is often restored by rest and Nauheim baths more effectually than by resistance exercises.

Nauheim baths and rest may prove as helpful in one set of cases as Nauheim baths and resistance exercises in another set. In the 'rest cure,' massage may be combined and do more good by passive exercise than the active 'resistance' exercises.

The 'rest cure' can also be combined with open-carriage exercise once or twice a day, and in fine weather lying down in the open air.

The 'rest cure' does most good where the general health is low through anxiety and over fatigue in business. To many such the bed is the first element of successful treatment.

By a wise arrangement of diet, the health of the body may be kept in perfect order even when very little exercise is taken. It is possible to strike a balance: if unable to take exercise, to take less food and pay special attention to the functions of the skin, kidneys, and liver. Abundant food

corresponds to abundant exercise; small meals to little exercise.

Case No. 11.—Mr. I., aged 66, consulted me in 1887, suffering from palpitation, breathlessness, and pain over the sternum after walking, but not after riding. A diastolic murmur was audible all over the aortic area. I advised him to give up walking altogether, and to limit his exercise to quiet riding about his farm, therefore to take very small meals of light food. He has remained well for eleven years, and suffers neither pain nor palpitation as long as he limits his exercise to riding.

When exercise of any sort causes pain about the sternum or left side, or breathlessness and embarrassment of the circulation, it is doing more harm than good. If continued perseveringly it may do permanent injury.

Fatty degeneration of the heart muscle may follow prolonged fatiguing exercise, and thus end in sad disappointment and mischief.

Cardiac debility is much more commonly due to dilatation than to fatty degeneration (Balfour, p. 310).

In every case of heart weakness, it is the pace that kills. The slow pace, with frequent pauses,

prevents the painful distress and breathlessness which is brought on by quick walking, especially when the exercise is long-continued.

The late Professor Jowett made a short expedition into the Lake country in 1858. 'Even then,' says the Warden of Merton, he 'felt that he could not trust his heart for mountain-climbing, and in walking from Langdale to Lodore he paused so often, and advanced so slowly up the steep ascent of Rossett Gill, as to make it impossible to reach our destination before dark.' Yet he lived for thirty-eight years after that, showing the wisdom of going slowly uphill, even so slowly as to let darkness overtake them.

Rest for the heart in the aged. Yet for the young and middle-aged it is essential to enjoin exercise, and resist the tendency to indolence of mind and body which many young people of both sexes so easily indulge in, often with over indulgence in animal food and alcoholic drinks, leading to obesity and accumulation of fat on the internal organs around the heart.

The ideal life for cardiac failure lies in the alternation of exercise and rest. Quiet, easy exercise in the open air, followed by rest on the couch

indoors, or in the garden. Many that die more or less suddenly, from excitement and fatigue, might live on in comfort if the doctor could wisely arrange the details of the daily life. 'Compensation' failing, Nature cries out for rest to the wearied muscular fibres of the ventricles, ceaselessly at work all through life. Whilst brain and limb are resting in sleep, the heart goes on working without a pause, night or day.

The effect of the Schott resistance exercises, most beneficial in many cases, is but a temporary remedy, as the good effect passes off soon after discontinuance. Carefully regulated open-air exercise proves more effectual and more permanent, especially when each patient finds out the sort of exercise and the amount which suits.

To those unable to take sufficient exercise, massage is often helpful, especially in cases of heart failure affecting the right side of the heart with inaction of liver, difficulty of breathing, livid extremities, cold feet, œdema. When unable to take sufficient exercise, the massage acts as a compensating influence, especially when the resisting exercises cease to do good. The massage acts on the lymphatic circulation quite as much as on the

blood-vessels, promoting a free flow through the capillaries and lymph channels.

When cardiac failure is associated with senile decay, the rest cure[1] is most helpful: a small amount of open-air exercise, followed by a long hour's rest on the couch or bed, will succeed in restoring and renovating when the exercise cure has failed.

[1] 'The "Rest" treatment for disease of the lungs, adopted with such great success in the German sanatoria, gives the cue to what many patients with heart disease often really need. Descriptions of this method, as carried out in the German sanatoria, have lately been given by Dr. Walters and by Dr. Hess. Stated briefly, the inmates of these institutions pass from seven to twelve hours every day in the open air in all weathers. They recline in long chairs, well covered with rugs and furs, and protected from wind by various forms of shelters. The same excess of fresh air is supplied during the night, and all bedroom windows are kept continually wide open. In the matter of exercise, considerable divergence of opinion exists in the various sanatoria. Brehmer was a great believer in exercise, and at Goerbersdorf, graduated walks and ascents were made use of by the patients. Dettweiler, on the other hand, keeps the inmates of Falkenstein perpetually at rest, and the prolonged adoption of the recumbent position is thought almost as important as open air' (*The Lancet*, March 5, 1898).

CHAPTER IV

GENERAL TREATMENT OF HEART DISEASE

In the treatment of heart disease, after the use of baths, exercises, rest, diet, etc., the relief is sometimes but partial. Then it is that the use of digitalis and other heart tonics comes in with more decided effect, especially in the worst cases when dropsy has come on. To remove the obstacles which oppose the action of remedies, and change the unfavourable conditions into those which promote recovery, is indeed one of the most perfect fields for the exercise of skill. The study of heart disease is one of the most interesting and complex of all studies. Knowledge of chemical, physical, and mechanical laws is essential to successful treatment.

Case No. 12.—Miss K. S., æt. 6, a sensitive, nervous child, got a sudden shock early in 1869. Swelling of the legs came on, gradually followed by

ascites and œdema of the lungs. She had been under the care of a local doctor and of a London physician for six or eight weeks. The dropsy increasing, I was called to see her, found her limbs and body enormously swollen, dulness at the base of the right lung, with absence of respiratory murmur. Pulse 132, feeble, loud diastolic murmur over the aortic area. The area of cardiac dulness much increased. Urine, only ten ounces in twenty-four hours, pale, specific gravity 1·010, non-albuminous. Bowels rather loose.

I prescribed digitalis — a teaspoonful of the infusion every four hours, and a generous diet, with a glass of champagne twice a day. Gradually the quantity of urine increased, the dropsy lessened, and in a few weeks she was perfectly cured.

The case is interesting as a clinical fact—perfect restoration to health from the use of a single remedy, without adjuncts, beyond good food and wine.

About two years afterwards, a relapse occurred, the heart's action became weaker, the dropsy slowly returned as badly as ever. The same remedy, the infusion of digitalis, was again carefully administered for many weeks, but without result. Even when the dose was pushed to a dessertspoonful three times a

day, still there was no diminution of the dropsy, no improvement in the heart's action, and no increase of urine. I then prescribed, in addition to the digitalis, a teaspoonful of sulphate of magnesia in a wine-glass of water, each morning. In a few days the quantity of urine increased, and the dropsy was again perfectly cured, the heart's action improving, and she got up out of bed, where she had lain for eight weeks. By degrees she recovered strength, and got about as well as ever, and for a period of nearly three years remained, to all appearance, well—still with all the signs of cardiac dilatation and mitral regurgitation.

Again the dropsy slowly returned, the abdomen became so distended that she lay in bed for nearly three months unable to stir, even to move herself without help. Digitalis was again given, the infusion first; afterwards changed to the tincture in eight-minim doses. No effect was produced on the dropsy. Again help of the purgative was added, yet no result whatever towards cure. I feared that the end of life was slowly coming on. Watching the utter prostration of muscular power, I omitted the purgative and prescribed six drops of the pure tincture of nux vomica twice a day before meals, and

continued the infusion of digitalis, a dessertspoonful three times a day a couple of hours after meals. The nux vomica acted like a charm. At once the former effect of the digitalis showed itself, the quantity of urine rapidly increased, the dropsy lessened, the muscular power returned. In two or three days she sat up in bed and began to exert herself; in a fortnight or three weeks she was up and as full of play as ever. Since then she has kept well, with occasional relapses, which three or four days' use of nux vomica and digitalis soon rights.

Case No. 13.—Mr. ——, æt. 62, a thin, sallow-looking City gentleman, for many years subject to weak action of the heart, was suddenly seized at his warehouse with breathlessness, palpitation, and inability to walk. Gradually dropsy came on. He was treated for nearly two months by a well-known West-end physician. The case was so urgent that for several weeks this gentleman slept in the patient's house. The dropsy steadily increased, till the patient's abdomen and legs became enormously swollen, so much so that he lay on his back unable to move from side to side for nearly a fortnight. The close attention of his medical friend having proved useless to the patient, as a last resource,

when life seemed coming near its close, he sent for Dr. Hewan, who summoned me to a consultation.

The patient lay like a log in bed, all the cellular tissue of the body, even to the eyelids and forehead, œdematous, the peritoneum distended with fluid. The heart's action feeble, with a soft systolic 'bruit,' audible over the region of the mitral valve. The area (cardiac) of dulness much increased. Universal crepitation over the base of both lungs. The urine scanty, dark-coloured, free from albumen; bowels costive.

We prescribed infusion of digitalis, half an ounce, three times a day, without any sensible relief. The dose was increased to one ounce, yet no effect. Afterwards ten-drop doses of the tincture of digitalis were given; still no increase of urine, no relief to the dropsy, or the dyspnœa. Beginning to lose heart, Dr. Hewan said at our next consultation, 'We must give up the digitalis.' 'No,' was my reply; 'but we must remove the obstacles to its action.' Accordingly, a brisk mercurial purgative was prescribed at bedtime, and the digitalis continued.

Twenty-four hours after the purgative, the true action of the digitalis showed itself in the free

secretion of urine, which for many weeks had been scanty, averaging 20 oz. in the twenty-four hours. Within two days it increased to 50 oz.—on the third day to 60 oz. Before the end of the week it reached 100 oz.

The digitalis was continued in tablespoonful doses for a week, then reduced to a dessertspoonful, and after a few days to a teaspoonful; yet, upwards of 100 oz. of urine continued to flow daily for three weeks. The dropsy slowly vanished, breathing became easy, and in a month, to the amazement of a very numerous circle of friends, the patient got about, apparently quite well. He lived for nearly three years. Eventually, dilatation of the heart increased, and the dropsy came on again. With the increase of organic disease there was less response to treatment, and he died suffocated with dropsy into the pericardium and pleura.

In this case the digitalis, unaided, had no curative action. It was given in small doses, in large doses, in tincture, and fresh-made infusion. It was about being laid aside altogether as useless, when the brisk action of the purgative relieved the obstructed portal circulation. The obstacle being removed, the digitalis acted like a charm, gradually increasing

the urine from 20 oz. to 100 oz., carrying off the dropsy to its last vestige. The old man was moved from his warehouse, where he was first seized, to his house in the country, and lived for three years a life of comparative comfort.

APPENDIX

THE SCHOTT EXERCISES[1]

1. Each movement is to be performed slowly and evenly, that is, at a uniform rate.

2. No movement is to be repeated twice in succession in the same limb or group of muscles.

3. Each single or combined movement is to be followed by an interval of rest.

4. The movements are not to be allowed to accelerate the patient's breathing, and the operator must watch for the slightest indications of duskiness or pallor of the cheeks and lips, sweating, and palpitation.

5. The appearance of either of the above signs of distress should be the signal for immediately interrupting the movement in process of execution, and for either supporting the limb which is being moved, or allowing it to subside into a state of rest.

6. The patient must be directed to breathe regularly and uninterruptedly, and should he find any difficulty in doing so, or for any reason show a tendency to hold his breath, he must be instructed to continue

[1] As described by Dr. Bezly Thorne in *The Schott Methods of the Treatment of Chronic Diseases of the Heart.*

counting, in a whisper, during the progress of each movement.

7. No limb or portion of the body of the patient is to be so constricted as to compress the vessels and check the flow of blood.

The following are the movements :—

No. 1.—The arms are to be extended in front of the body on a level with the shoulder-joints, the palms of the hands meeting in front of the chest. The operator places his hands on the outer surface of the patient's wrists in such a manner that the ulnar side of the patient's wrist rests in the fork between his own thumb and forefinger. He places one foot in front of the other so that he may lean forward, without overbalancing himself, while the patient's arms are carried outwards until they are in line with each other and with the transverse diameter of the chest. The operator then places his hands, with a similar disposition of the thumb and forefinger, on the palmar surfaces of the patient's wrist, and offers resistance while the arms and hands are being brought back to the position from which they started.

No. 2.—The arm and hand of one side at a time are extended in the depending position, with the palm of the hand directed forwards, and the operator, standing at the patient's side, places his open hand on the palmar surface of the patient's wrist, the thumb only being on the dorsal surface. The patient then flexes the forearm, without movement of the

upper arm, until the fingers come into contact with the shoulder. The operator then places the palmar surface of his own hand on the dorsal surface of the wrist, and maintains it there while the flexed arm is being extended to the position from which the movement commenced.

No. 3.—The arms are extended vertically in the depending position, with the palms of the hands turned forwards. After they have been raised outwards until the thumbs meet over the head, they are brought back to the original position. The operator faces the patient, and resists the upward movement on the radial side of the wrist, and the downward movement on the ulnar side.

No. 4.—The hands, with fingers flexed from the end of first phalanx in such a manner that the second phalanges of the respective fingers of the two hands are in apposition with their fellows on the opposite side, are pressed together in front of the lower part of the abdomen. The thumbs are extended, and lie within the three sides of a rectangle formed by the flexed forefingers, and touch each other at their tips. The arms are then raised until the hands are on a level with the vertex of the head. Resistance is offered by placing the hands on the radial surface of the wrists. The movement is then reversed. Before the return movement is performed, the operator changes the position of his hands so as to receive the wrists in the fork between his thumb and fore-

finger, the palmar surface of his fingers being applied to the palmar surface of the patient's wrists.

No. 5. — The extended arms are placed in the depending position, with the palms of the hands resting against the thighs. They are then raised in parallel planes until vertically extended. The movement is then reversed. The operator faces the patient, and in order that he may maintain a uniform and effective resistance, the relation of his hands to the patient's wrists must pass through the following changes: In the first position the fork between his thumb and forefinger must be applied to the radial part of the wrist. As the arms rise to an angle of 45 degrees to the body, his fingers glide round the wrist until they are lightly folded round the radial surface of the wrists. Before the reverse movement commences he receives the ulnar aspect of the wrist in the fork between his thumb and forefinger. While the arms are descending the thumbs move outwards, and at the same time the fingers glide round the dorsal surface of the wrist in a direction opposite to that which his thumb is taking, in such a manner, and at such a rate, that, when the patient's arms are on a level with the shoulders, the ulnar aspect of the wrist rests on a reversed fork formed by the radial aspect of operator's forefingers, and the thumb pushed out to a right angle with the somewhat flexed fingers. As the hands descend towards the thighs the tips of the operator's fingers gradually glide round

to the ulnar aspect of the wrist, so as to resist the downward and backward movement of the arms. This is the operator's *pons asinorum*, but it should be mastered.

No. 6.—The trunk is flexed forward, without the knees being bent, and then brought back to the erect position. The operator stands at the patient's side with one hand over the upper third of the sternum, and the other supporting the mid lumbar region. The reverse movement is resisted by placing one hand over the junction of the cervical and dorsal portions of the spine.

No. 7.—The trunk is rotated, without movement of the feet, as far as it can be carried to one side, say to the right, then to the left, and lastly brought back to face forwards as at starting. The movements are resisted by one hand being placed in front of, and a little above, the advancing axilla, while the other is placed over the receding shoulder. The operator must, to a limited extent, move round the patient when the second stage of the rotation is being performed, and will be able to do so most evenly and securely by carrying one foot round behind the other, somewhat as is done in performing the skating 'outside edge backwards,' before shifting the position of the other.

No. 8.—The trunk is flexed laterally, first to one side, secondly completely over to the other, and thirdly brought back to the erect position. The

operator stands in front of the patient. When the movement is to the right, his left hand is pressed against the right side of the chest in the axilla, while the right firmly supports the opposite hip, and *vice versâ*.

No. 9.—This movement is identical with No. 1, with the exception that while it is being executed the fists are kept firmly clenched.

No. 10.—The arms are flexed in succession, as in movement No. 2, with this difference, that the palmar surface is turned outwards and the fist is firmly clenched.

No. 11.—The arm is extended in the depending position, the palm of the hand lying against the thigh, and then makes a complete revolution from the shoulder-joint, forwards and upwards, until it is vertically raised alongside of the ear. Before it descends backwards, the palm of the hand should be turned outwards. The operator stands at the patient's side with his fingers folded round the radial side of the wrist. His other hand must be ready to receive the wrist when it reaches the vertical position, and to maintain the resistance until the arm has descended to the position from which it started. This movement is performed by one arm at a time.

No. 12.—The arms are extended vertically in the depending position, the palms of the hands resting against the thighs. They are then moved upwards and backwards in parallel planes as far as it is possible

to do so without bending the trunk forwards. The upright movement is resisted with the fork of the hand on the ulnar aspect of the wrist; the downward, by folding the fingers round the radial surface.

No. 13.—The patient stands with one hand resting on a chair or table, while the thigh of the opposite side is flexed on the trunk to the extreme limit, and then extended until the feet are side by side. The leg should hang downwards from the knee-joint. The upward movement is resisted by a hand placed immediately above the knee. The return may be resisted by a hand placed below the lower part of the thigh, or under the sole of the foot.

No. 14.—The patient, supporting himself with one hand, as in the last movement, bends the whole extended lower extremities in succession, first forwards to the extreme limit of movement, then backwards to the same degree, and finally brings the one foot alongside of the other. The forward movements are resisted in front of, and above, the ankle; the backward movements behind.

No. 15.—The patient, supported in front by a chair or table, stands on either foot in succession, while the leg of the side is flexed on the thigh. The upward movement is resisted by pressure on the heel; the return movement above the instep.

No. 16.—The patient, resting one hand on a chair and standing on the foot of the same side, raises the extended lower extremities in succession, outwards

from the hip-joint, and then reverses the movement. The operator resists by means of one hand placed above the ankle.

No. 17.—The arms, extended horizontally outwards, are rotated from the shoulder-joint to the extreme limits, forwards and backwards. The movements may be resisted by the operator grasping the ulnar edge of the metacarpal portion of the hand, or by closing his thumb and forefinger in a ring round the wrist.

No. 18.—The hands, in succession, are first extended, then flexed on the forearm to the extreme limits, and lastly brought into line with the arm. The operator's one hand supports the wrist, while the other resists the movements at the metacarpo-phalangeal junction, first on the dorsal, secondly on the palmar, and thirdly again on the dorsal surface.

No. 19.—The feet, in succession, are flexed and extended to the extreme limits, and then brought back to their natural position. The movements are resisted in the dorsal and plantar surfaces, at about the level of the metatarso-phalangeal joints.

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